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| 10/796,976      | 03/11/2004  | Ho-Chieh Yu          | BHT-3230-98         | 4047             |

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| EXAMINER |
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WARTALOWICZ, PAUL A

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| ART UNIT | PAPER NUMBER |
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1793

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05/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/796,976

**Applicant(s)**

YU ET AL.

**Examiner**

PAUL A. WARTALOWICZ

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 6, 8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 6/29/07 have been fully considered but they are not persuasive.

Applicant argues that Tao does not teach a cathode including copper and a metal of manganese.

However, applicant admits that Tao teaches a material for solid state cathode [0011], lines 1-3) wherein said materials have general form of  $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{Cu}_c\text{O}_d$  wherein A is an alkaline earth metal, B is selected from the group consisting of scandium, yttrium and a lanthanide metal, C is selected from the group consisting of iron, cobalt, nickel, **copper**, and zinc, x is from 0 to about 1.5, y is from 0 to about 1, a is from 0 to about 0.5, b is from 0 to about 0.5, c is from 0 to about 0.5, and d is between about 1 and about 5 (paragraph 0011). This appears to teach a cathode material including copper and manganese.

Applicant argues that it is clear that  $\text{LnCuO}_3$  definitely has different chemical and structural meaning from  $\text{C}_c\text{O}_d$  in  $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{C}_c\text{O}_d$  where c is 0-0.5.

However, it is unclear why applicant compares the prior art to  $\text{LnCuO}_3$  because it appears that  $\text{LnCuO}_3$  is not an embodiment of the current invention. It appears that there are different formulas embodied in the claimed invention and that the prior art meets at least one of those because of the taught values of the subscripts. Even if the difference in formula configuration connotes a difference in the lattice structure, such a difference is not claimed.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., lattice structure particular to the invention) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that in comparison, the present invention is drawn to a cathode material and Tao is drawn to substitution of metal ions for an electrolyte material.

However, it is not necessary to modify the present invention with the prior art, only that there is motivation to combine or modify the prior art to render the instant invention obvious.

Applicant argues that it would be difficult to replace tetravalent zirconium ions with a copper ion in incorporating copper ions in a  $ZrO_2$  lattice.

However, Elyem teach that the anode can comprise alkaline earth metals for the purpose of reducing the cathode containing copper (col. 7).

Applicant argues that Coetzer and Elyem fail to provide the argued deficiencies of Tao et al.

However, Coetzer and Elyem are not relied upon to teach those deficiencies. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that there is no motivation for the combination of Tao and Coetzer.

However, applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 6, 8, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (U.S. 2002/0015877) in view of any one of Eylem et al. (U.S. 7160647) or Coetzer et al. (U.S. 4366215).

Tao teaches a materials for solid state cathode (paragraph 0011, lines 1-3) wherein said materials having general form of  $\text{La}_x\text{Mn}_y\text{A}_a\text{B}_b\text{Cu}_c\text{O}_d$  wherein A is an alkaline earth metal, B is selected from the group consisting of scandium, yttrium and a lanthanide metal, C is selected from the group consisting of iron, cobalt, nickel, copper, and zinc, x is from 0 to about 1.5, y is from 0 to about 1, a is from 0 to about 0.5, b is from 0 to about 0.5, c is from 0 to about 0.5, and d is between about 1 and about 5 (paragraph 0011) wherein at least one of x, y, a, b, and c is greater than zero (this meets the limitation wherein copper is partly converted to trivalence ion as met by the formula  $\text{CuO}_3$ , paragraph 0011, lines 16-18) and the materials for cathode in a solid oxide fuels cell is operable at a temperature of 400°C to 2000°C (paragraph 0007, lines 8-10). Tao teaches introducing ions having valence numbers of less than four in a lattice structure (trivalent copper is an ion having a valence number of less than four, paragraph 0037, lines 25-30) in a lattice structure for the purpose of having extra oxygen anion vacancies in the crystal lattice (paragraph 0037, lines 27-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide introducing ions having valence numbers of less than four in a lattice structure (trivalent copper is an ion having a valence number of less than four, paragraph 0037, lines 25-30) in a lattice structure in Tao in order to have extra

oxygen anion vacancies in the crystal lattice (paragraph 0037, lines 27-30) as taught by Tao.

Tao fail to teach the anode is doped with alkaline earth metals.

Coetzer et al. teach an electrochemical cell comprising a solid oxide cathode (col. 1) and an anode comprising an alkaline earth anode (col. 4) because the material of the anode is chosen so that it is chemically compatible with the oxide starting material (col. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide an anode comprising an alkaline earth anode (col. 4) in Tao because the material of the anode is chosen so that it is chemically compatible with the oxide starting material (col. 4) comprising substantially similar elements as taught by Coetzer et al.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz



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May 12, 2008

/Steven Bos/  
Primary Examiner  
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